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ABSTRACT

Twelve pairs of three-year-olds and twelve pairs of five-year-olds were monitored in a play situation; their transcribed speech was examined for use of nominal reference, with attention to pronominalization and ellipsis. For the corpus of nominal references, there was a clear trend toward normal progression from specific indefinite to definite to reduced form, and from specific definite to reduced form. When reduction did occur, pronominalization was the preferred form for maintaining reference, followed by demonstrative reference and ellipsis, in that order. Substitution and comparative reference were rare. The magnitude of scope, measured in number of clauses during which reference was maintained, did not positively affect the restoration of the full form. The effect of a cued condition was to permit reduction of initial referent form. The effect of other conditions (pretend, new referent, new information, no response, identification) was to block reduction. Within each situational condition, the incidence of utterances was different for the two age groups. However, the proportion of utterances that were reduced by the older children was not significantly different from the proportion reduced by the younger children in any of the conditions. (JB)

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Factors Influencing the Form of Continued Nominal Reference in Children's Talk

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Interest in the operation of anaphoric processes has extended from sentential to discourse relations, though there has been little work on these processes in children's spontaneous conversations. In creating a conversational episode, participants must first identify uniquely the discourse referent or referents, a process which, as Keenan and Schieffelin (1976) have shown, may require several turns at speaking. Once a discourse topic is shared (established), reference to the event or entity must be maintained so long as it plays some role in the subsequent talk. Yet, if the conversation is to progress, and does not lapse into ritualized, repetitive play form, progressive modification of initial referent forms is likely and, perhaps necessary. There is in children's and in adult's conversation a tendency toward reduction of surface redundancy, so that as new discourse components are introduced, or old ones subsequently mentioned, the form of those components introduced earlier is subjected to substitution, ellipsis, lexical modification, or reference (Halliday and Hasan (1976). Thus, "The big blue car" may appear on second mention as "it," or may be retained by implication only, or 'bridging' (Rochester & Martin, 1977), if the next speaker goes on to speak of "The wheels" or "The windshield." The reduction process may occur in a single turn constructed of a complex or compound sentence, as when a child opens a conversation by saying, "This is my truck (r1) and you can't have it (r1)".[1] Or the reduction may occur across a single speaker's series of non-conjoined, but juxtaposed clauses, as when a child opens a conversation by saying, "Here, this is coffee, (r1) I made it (r1) for you." The reduction may first occur in a second speaker's turn, where it would presumably signal that the identity of the referent was established and accepted, e.g., First speaker: "Look at the dolly (r1)." Second speaker: "She's (r1) pretty."

The tendency toward reduction of referent form must, however, compete with the requirement for unambiguous reference to the discourse components that continue to take part in the conversational episode, as these components change their grammatical role, (e.g., from subject to object) and/or are joined by new information. New information can enter the discourse as a new referent or as a modification to an established referent.

Our interest in the factors influencing the way young children maintain reference over spontaneous conversational episodes was initially triggered by our observation that following stretches of dialogue in which normal ellipsis or pronominalization of a discourse component occurred, the original referent would sometimes be relexicalized in full or partially full form. This restoration of a fuller reference form following reduction could not, in many cases, be explained simply as a 'topic reintroduction' as often no temporal, content, or activity break intervened between the reduced or elided form of r1 and the restored form of r1. Thus, the possibility that some features of the discourse structure or the content of the interaction might be responsible for the restoration of the full or partially full form was considered.

The objective of the present, exploratory study was to identify some of the discoursal factors that might influence continued reference forms in children's spontaneous conversational episodes. Not only was the phenomenon of 'restoration' of interest; the operations of reduction or nonreduction of full referent forms were also investigated to learn how children maintain, or continue, reference in conversation. The study was restricted to nominal reference, i.e., repetition, modification or reduction of co-referent phrases. The dependent variable of interest was nonreduction or restoration of the full form following reduction. The study did not attempt to investigate the determinants of the initial form taken by referents on first mention, either in episode initial position or as they might enter the episode during its course.

Procedures:

The speakers were pairs of same-aged children videotaped in a laboratory playroom. Each pair spent approximately 15 minutes in the room, and no adult was present. Twelve pairs were three years old (2:10 - 3:3) and 12 pairs were five years old (5:1 - 5:5). Their speech had been previously transcribed for another study.[2]

Pronominal reduction within sentential structures or within same-speaker's non-conjoined, but juxtaposed clauses was displayed by the majority of the younger subjects and by the older subjects. Thus, the children had already acquired some use of this technique for marking relations between clause units. Grammatical ellipsis was also displayed in both groups, though the preferred type of ellipsis for the younger subjects was clausal (only the polarity marker retained) and modal, e.g., First speaker: "Can you lift it?" Second speaker: "Yes.", or "I can't." It is important to note that more than 2/3 of all instances of ellipsis in both age groups was reactive rather than proactive, i.e., ellipsis was performed off material from the partner's prior utterance rather than off the speaker's own prior utterance. This fact indicates the ability of both groups of children to use the cohesive device of ellipsis to reduce redundancy of surface form in conversation.

The coding for the present study was done from the videotapes, since we hypothesized that situational information, specifically, physical absence or presence of the referent objects, partner attention, particularly visual attention to the referent object, and possibly nonverbal acknowledgement of the message might be relevant to the selection of encoding form of the noun phrase.

The first procedural step was to identify conversational episodes. The minimal sequence appropriate to our objective was composed of three turns at speaking, though the majority of episodes were longer. The criteria required that the initiating turn did not select its topic from prior talk. The terminal turn was followed by a pause of 10 sec. or more or by a turn that showed no coherence with the putative episode. A typical conversational episode produced by a pair of three year old girls ran as follows:

1)	J(3:0)	S(3:3)
		Is Daddy (r1) at work?

My daddy?(r1)

Yeah.

Yeah.

Do you know he's (r1) gonna to come home?

Um.

I, yeah, yes, he's (r1) gonna come home.

The noun phrase in question here, which was tracked through the three successive forms of its continued reference was "Daddy -- my Daddy -- he -- he." Within each episode, each NP referent was assigned a referential index, as in (1) above. Each mention of each referent was coded according to the form in which it appeared as full (non-reduced) or reduced. Full forms were the noun phrase (head plus or minus articles, demonstratives or modifiers). Loss of a descriptive modifier in a second mention, e.g., a change from ' a red car' to 'the car' was also counted as a full form. Full forms may be specific, and if specific, definite, e.g., 'the car' or indefinite, e.g., 'a car.' Or full forms may be generic, e.g., 'Snakes bite,' or they may be unique, e.g., 'The sun is hot.' Reduced noun phrase forms were coded as pronominal, demonstrative, and comparative. Instances of substitution and ellipsis were also coded.

Finally, the scope of each continued reference was calculated as the number of clauses over which there was evidence that the referent had been carried, and whether or not restoration of the full form occurred. Restoration of nominal form following reduction by pronominal reference is illustrated below:

		Code
2) A.	I have a car. (r1)	full
B.	I want to ride it. (r1)	reduced-pronoun
A.	You can't ride this big car. (r1)	non reduced

Note that for an adult speaker, reduction by substitution in the third turn would be possible,; e.g.,"You can't ride this big one."

The discoursal and situational conditions that we hypothesized might influence non-reduction and restoration were arrived at from a consideration of the literature on child discourse and from inspection of our corpus of child conversations. Note that we are assuming that 'normal' reduction of noun phrase form on subsequent mentions would occur unless blocked or otherwise affected by one or more of the conditions. The results to be reported below confirmed this assumption.

Young children direct their attention,and talk,primarily to the here and now and to objects and events with which they are immediately involved. They often make assumptions that their partners can identify a referent that may be located only in the speaker's perceptual or cognitive field. We asked first how the physical presence or absence of the referent object in the immediate environment influenced the form of subsequent mention. Thus, three, mutually

exclusive conditions were coded for each occurrence of a nominal reference: Cued (referent object present in the immediate situation); Pure (referent object absent from the immediate situation); and Pretend (object or person assigned an identity that was make believe or contrary to fact, e.g., calling the sofa "a train".) Four other conditions were hypothesized to influence noun phrase form on subsequent mention: the condition that a New Referent had entered the discourse in the episode, thus crowding the referential field; the condition that New Information was added to the noun phrase bearing the same referential index; the condition that the partner provided No Response to the turn in which the noun phrase occurred; and the condition that following the turn in which the noun phrase occurred, there was an apparent problem in Referent Identification, or specification.

It was expected that normal and expected reduction of the noun phrase bearing a given referential index would be blocked on subsequent mention given the conditions of New Referent, New Information, No Response or problem in Referent Identification. It was also expected that the Cued condition would facilitate normal reduction on subsequent mention, whereas the Pure and Pretend conditions would tend to block reduction.

Examples of the coding catagories for the conditions, and of reduced and full forms are given below:

3)

		Codes: Condition	Codes: Form
A.	You mean you gimme ladder (r1)?	Cued	
	Well, gimme it. (r1)		Reduced (Pron)
B.	You can have this. (r2)	New Referent	
A.	No, if you gimme ladder (r1)		Full
	I give you this (r3), if you	New Referent	
	gimme ladder. (r1)		Full

The full form of ladder (r1) was initially cued, the referent object being present and in the partner's hand. On second mention, it was reduced (pronominalized). A new referent (r2), another toy, was introduced exophorically, in demonstrative form. Then (r1) was restored to full form (ladder) on next mention. Another New Referent (r3). another toy, entered the discourse, as exophoric, and in demonstrative form, and again (r1) appeared on next mention in full form. Its continued reduction was blocked, we hypothesize,by the fact that the New Referent condition obtained.

Example 2) above illustrates the addition of New Information. The Cued referent (" car") was reduced on second mention . When the adjective "big" was added to the head of the noun phrase "car",the full form was restored. Example 4) illustrates the condition of problem in Referent Identification:

4)

		Codes: Condition	Codes: Form
A.	Do you have U-H-F (r1)?	Pure	
B.	What's H-F (r1)?	Ref. Ident.	Full
A.	U-H-F (r1).	Ref. Ident.	Full
B.	U-H-F (r1), Yes we do.		Full, Reduced (Ellipsis)

The topic of this episode was absent from the perceptual environment, thus the topic of this episode was a Pure referent: a problem in identification arose and the full form was retained into the last turn. After the problem was resolved, the expression was reduced in the final, elliptical clause. Example 5) illustrates the nonreduction of a referent in the Pretend condition:

5)		Codes: Condition	Codes: Form
A.	Pretend you were a Santa Claus. (r1)	Pretend	
B.	And Santa Claus (r1) says "Goodbye Momma." 3		Full
A.	Santa Claus (r1) coming right back. (to doll).		Full
B.	And I'll be Santa Claus.		Full

Results:

The mean number of episodes per dyad containing full noun phrases was 30. Beginning with the first full noun phrase in an episode and tracking subsequent mentions bearing the same referential index, there was for the entire corpus of episodes a clear trend toward normal progression from specific indefinite to definite to reduced form, and from specific definite to reduced form. There were some exceptions: for example, 5% of the initial forms with definite article showed on subsequent mention, the indefinite article. Initial NP form utilized the definite article primarily (74%), a fact, we believe that reflects the presence of the referent object in the setting, and often in the hand. This may reject the deictic or exophoric use of the definite article, as Karmiloff-Smith (1979) has pointed out.

When reduction did occur, pronominalization was the preferred form for maintaining reference (56%), followed by demonstrative reference (20%) and ellipsis (16%). Substitution and comparative reference were rare. The magnitude of scope, measured in number of clauses during which reference was maintained, did not positively effect the restoration of the full form. The mean number of clauses within which the full form of a noun phrase reappeared was 1.95 (range = 1-8 clauses). The mean number of clauses over which the full form was not restored was 3.52 (range 1-20 clauses).

Effects of the conditions. The effect of the Cued condition was to permit reduction of initial referent form for both age groups. Table 1 presents on the first line the percentages of initial referents that were reduced on subsequent mention under the cued condition. A X^2 analysis showed the difference between reduction and nonreduction under the cued condition to be significant beyond the .001 level for both age groups. (Table 2). The Pure condition did not block reduction among the older dyads: reduction usually followed ($p < .05$). The younger dyads tended to maintain the full form more often under the pure condition, but its effect on blocking reduction was not statistically significant for this group.

The effects of the remaining conditions, shown under the dotted line in Table 1, are apparently strong in blocking reduction. Under the condition of failure of Referent Identification or Specification, there were few instances of reduced referent form in either age group. The differences be-

tween reduction and non-reduction were highly significant. The Pretend condition was the least effective deterrent to reduction for the older group, its effects were not significant. The introduction of New Information to the noun phrase was the least effective for the younger group: its effect was significant only at the .05 level. Among these conditions listed below the dotted line in Table 1, the only difference between reduction and non-reduction that failed to show a high or moderate level of significance was the Pretend condition for the older group. (Significance levels of the percentage results are shown in Table 2).

An interesting finding is the fact that the Pretend condition worked more reliably to block reduction of referent form for the younger dyads than for the older dyads. This suggests that the younger dyads tend to provide fuller identification of referent objects whose identity exists only in the make-believe cognitive space. The older dyads may have more confidence in their ability to maintain the identity of pretend referents, even when the surface form is reduced.

Within each situational condition, reduction by the younger and older groups of children was examined. The incidence of utterances in each condition was different for the two groups. Although it was found that the older children produced significantly more utternaces in the Cued,Pretend and New Referent conditions than the younger children and that the younger children had significantly[4] more utterances in the No Response condition, the proportion of utterances that were reduced by the older children was not significantly different from the proportion reduced by the younger children in any of the conditions.

A two-way χ^2 comparison of reduction vs. non-reduction and younger vs. older children was performed for each condition. A rank-sum test was also done on the proportions of reduction for each of the younger and older dyads in each condition. Neither test revealed a significant age difference for any condition. This finding lends support to the hypothesis that the identified conditions affect young children's use of reduction of the form of subsequent mentions of nominal referents in conversation.

Discussion

The objective of this study was to identify and assess the influence of conditions that effect the linguistic form of continued nominal reference in children's spontaneous conversations. An assumption was made, based on inspection of a corpus of children's dyadic conversational interactions and on a prior study of ellipsis in this corpus (Bitetti, 1978), that a normal tendency toward reduction of redundancy was operative in the discourse of three year olds as well as of five year olds. In a number of instances of coherent interactive talk, or episodes, however, it was noted that either a nominal referent was not reduced (e.g., by pronominalization) on subsequent mention, or that it was reduced on second or third mention and then was restored to full or partially full form later in the episode. In these cases, it was hypothesized that failure to perform 'normal' reduction or the restoration of a noun phrase to its full form were not random phenomena but might, on the contrary, reflect attempts to avoid potential ambiquity, or otherwise sustain referential clarity or continuity.[5]

Inspection of the conversational episodes produced by the children led to the identification of seven conditions as candidate factors that might facilitate the operation of normal reduction or block that operation. All episodes containing a full noun phrase employed for first mention of a discourse referent were analyzed. The conditions that obtained were coded and the linguistic form of the reduction was noted; further, the scope, or number of cluases, over which reference was maintained was calculated.

The effects of the conditions on reduction or non-reduction (including restoration of full form) were then assessed for the two age groups of children. It was found that, although there were differences in the frequency with which the conditions obtained in the two age groups, there was no significant age difference for any condition. Reduction or non-reduction could not be attributed to the scope of reference. Thus, the hypothesized conditions may, indeed, reflect some of the factors that influence the form of continued reference.

The identified conditions were of two types. The first type reflects interactional aspects of the discourse, the initial failure to consummate reference. This type includes two conditions: No Response and problem in Reference Identification, or Specification. The No Response condition effectively blocked reduction by the speaker, who might be forced to repeat himself several times before receiving an acknowledgement from the partner that the latter was attending and was ready to accept and, perhaps, forward the topic of conversation. The speaker did not reduce the initial full noun phrase until some acknowledgement was given. The second condition includes cases in which a response was given, but the response questioned or contradicted the referring expression. Reduction was blocked for both partners until the identity of the referent or a mutually acceptable referring expression was achieved.

The second type of condition reflects the real or perceived status of properties of the referent field of the conversational episode. Five conditions fall in this group. The New Information condition obtained when initial mention of a referent (r1), which might be subsequently reduced, was then augmented by a new element, usually an adjective (epithet or classifier). The New Referent condition obtained when r1 was joined during the course of the episode by additional referents (r2, r3). Under both conditions, r1 tended to appear on subsequent mention in full form. The three remaining conditions of this type were the Cued, Pure, and Pretend conditions. If the referent (r1) involved an imaginary identity, such as results from a pretend transformation of a person (e.g., child partner to the role of Santa Claus or the fireman), or object (e.g., a box or empty corner to a cave), there was a tendency for the full form of the referent to be maintained. Interestingly, this tendency was much more pronounced among the younger dyads than among the older ones, suggesting that the latter may have felt more confident of the efficacy of their make-believe verbal transformations. If the referent object was present in the situation, (and had not undergone a pretend transformation), the referent in this Cued condition generally underwent reduction on subsequent mention and remained in reduced form unless some other condition arose, (e.g., New Information, New Referent). We had hypothesized that absence of the referent object (the Pure condition) would tend to block reduction; this was, however, not the case for these dyads. Among the older dyads reduction of noun phrases on subsequent mentions was the rule in this condition. For the younger dyads, however, the effect of the Pure condition was not statistically significant.

As shown in Table 1, the dyads in this sample tended to reduce noun phrases on subsequent mention within an episode unless one of the following five conditions obtained: Pretend, New Referent, New Information, No Response, or problem in Identification. Those five conditions accounted for 80% of nonreduced or restored noun phrase forms. These results suggest that both conditions of the interaction itself (conditions of type 1) and factors in the referential field and situational environment may systematically influence the linguistic form of continued mention of components in the discourse. The possibility deserves to be examined using a larger corpus of episodes and analyses that would weight the relative influence of the identified factors.

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Footnotes

1. Second and subsequent mentions are underlined in examples. Referential identity is indicated by a subscript, e.g., r_1 for each occurence; $r_2 \ldots r_n$ for new, additional referents in the episode.

2. See Garvey (1977) for a description of the observation and transcription procedures.

3. Terms of direct address, whether pronouns or proper names, were not coded as referents; accordingly "Momma" was not assigned a referential index. Thus, New Referent condition was not coded.

4. These differences were found to be significant by a χ^2 comparison of younger vs. older children in each condition, but were not found to be significant by a rank-sum test.

5. Some instances of failure to reduce a noun phrase on subsequent mention might, of course, be attributed to a child's immature command of the requisite linguistic operation, e.g., the appropriate use in context of certain substitutes such as 'the same', 'the other'.

Table 1

Percentages of Reduction of NP Form under Different Conditions

Condition	Older	Younger Dyads
Cued	85.27%	84.83%
Pure	80.00%	68.75%
Pretend	37.70%	15.62%
New referent	23.30%	12.50%
New information	12.50%	18.75%
No response	9.37%	16.30%
Identification	6.25%	3.51%

a)

a) Conditions below dotted line account for 80% of all instances of nonreduction or restoration.

Table 2

χ^2 Analysis of the Differences Between Reduction and Non-Reduction for the Two Age Groups under the Different Conditions

Conditions	Oldest	Youngest
Cued	110.04***	84.99***
Pure	6.05*	3.78 NS
Pretend	3.21 NS	13.78***
New referent	11.26***	12.04***
New information	7.56**	5.06*
No response	19.53***	40.05***
Identification	47.27***	47.44***

*** $p < .001$
** $p < .01$
* $p < .05$